

REMARKS

Claims 19-22 and 24-30 are pending with entry of this amendment. New Claim 30 is added, directed to the use of plasma stripping techniques to remove graphite from at least one surface of the composite material. None of the references cited teach this method of removing graphite from the surface of the composite material.

Claim 23 is cancelled. Claims 1-18 were withdrawn from consideration in response to the restriction requirement, and will be canceled upon receipt of a notice of allowance of the pending claims. Claims 24, 25 and 28 are amended as discussed more fully below.

Claim Objections

Claim 23 is objected to as failing to further limit the subject matter of Claim 19. Claim 23 is cancelled herewith, thus obviating this objection.

Rejections under 35 U.S.C. §112

Claims 19-29 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Applicants address this rejection with the following remarks and amendments.

Applicants submit that there is nothing unclear about the language of Claims 19 and 28, which states that the composite metal graphite substrate has "at least one surface substantially free of graphite". This language is clear on its face. Claim 23 has been cancelled, and therefore the metes and bounds of Claims 19 and 28 would be understood by one skilled in the art.

Regarding Claim 24, the antecedent basis for "the material" has been corrected to "the composite material".

Regarding Claim 25, the carbon fiber content is amended to reflect that it is measured by wt.%, as reflected in the specification at page 4, lines 9-15.

Regarding Claim 27, the plain language of the claim is perfectly clear: the "metal-containing intermediate layer *comprises* a zincate".

Applicants respectfully submit that Claims 19-22 and 24-29 meet all requirements of §112 under the statute, and request that this rejection be withdrawn.

Rejections under 35 U.S.C. §102

Claims 19-24, 28 and 29 are rejected under 35 U.S.C. §102(b) as being anticipated by Smith et al., U.S. 5,730,853. Applicants respectfully traverse this rejection.

In the method of preparing the metal graphite composite substrate of the present invention, graphite is removed from the surface of the composite material by methods such as oxidation, for example, at elevated temperatures of at least 250°C, or by other methods, such as plasma stripping. This provides at least one surface that is substantially free of graphite. Following graphite removal, the composite material of the present invention is chemically cleaned, for example in a high pH alkaline solution by dipping and rinsing techniques.

It is asserted in the office action that Smith et al. teach removing graphite from the surface of an aluminum graphite composite material by cleaning. Applicants do not disagree with this description of the Smith et al. disclosure. However, the cleaning of Smith et al. does not result in a surface of the composite material being “substantially free of graphite”, as recited in Claims 19 and 28. The cleaning of Smith et al. is undertaken to remove loose graphite particles from the surface, so that the particles do not interfere with metal plating (see, e.g., Smith et al. at col. 5, line 63 to col. 6, line 3). This is not the same as removing substantially all graphite from the surface of the composite material. The cleaning of Smith et al. is similar to the cleaning step in the present invention, which follows removal of the graphite from at least a surface of the composite material. Applicants submit that the composite material of Smith et al. does not have at least one surface which is substantially free of graphite.

Additionally, Smith et al. do not teach a method of preparing a metal graphite composite material in which graphite is removed from the surface by oxidation at temperatures of at least 250° C, or by vibratory finishing techniques, plasma stripping techniques, glow discharge techniques, mechanical blasting techniques, lapping techniques, or combinations of any of these, as recited in Claim 28.

Smith et al. do not anticipate any of Claims 19-22, 24, 28 and 29. Applicants request withdrawal of the §102 rejection based on Smith et al.

Claims 19-23 and 26-29 are rejected under 35 U.S.C. §102(b) as being anticipated by Saubestre et al., U.S. 3,411,995. Applicants respectfully traverse this rejection.

Applicants submit that Saubestre et al. do not teach a metal graphite composite material have at least one surface that is substantially free of graphite; the portions of Saubestre et al. cited to in the office action do not disclose this. In fact, the opposite is true: at column 5, lines 29-34, Saubestre et al. state:

In essence, the invention disclosed and claimed herein comprises a cast iron product, *whose surface contains discrete carboniferous particles* and a relatively thin continuous phosphate-containing pre-plate film, essentially covering a surface of said product and a metal plate firmly adherent to said pre-plate film.

The surface of Saubestre et al.'s material contains carboniferous particles. Thus, Saubestre et al. cannot be said to teach a metal graphite composite material having at least one surface which is substantially free of graphite. Additionally, Saubestre et al. also do not teach a method of preparing a metal graphite composite material in which graphite is removed from the surface by oxidation at temperatures of at least 250° C, or by vibratory finishing techniques, plasma stripping techniques, glow discharge techniques, mechanical blasting techniques, lapping techniques, or combinations of any of these, as recited in Claim 28.

Applicants respectfully request withdrawal of the §102 rejection based on Saubestre et al.

Rejections under 35 U.S.C. §103

Claim 25 is rejected under 35 U.S.C. §103(a) as being obvious and unpatentable over Smith et al. as combined with Cornie et al., USPA 2003/0024611. Applicants respectfully traverse this rejection.

Claim 25 is directed to the carbon fiber content of the composite material. Applicants concede that this carbon fiber content is disclosed in Cornie et al. However, neither Cornie et al. nor Smith et al. provide the missing teaching, namely, a metal graphite composite material having at least one surface that is substantially free from graphite. As Claim 25 depends from Claim 19, these references even in

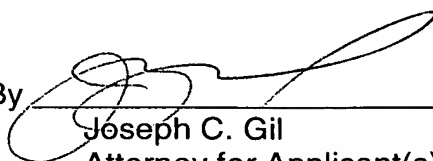
combination do not render Claim 25 obvious. Applicants request withdrawal of the §103 rejection.

CONCLUSION

Applicants submit that all outstanding issues have been addressed, and that Claims 19-22 and 24-29 are in condition for allowance. A Notice of Allowance is respectfully requested at an early date.

Respectfully submitted,

By



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